

THERMAL BARRIER COATING AND PROCESS THEREFOR

Abstract of Disclosure

A thermal barrier coating, or TBC (26), and method for forming the TBC (26). The TBC (26) is formed of a thermal-insulating material that contains yttria-stabilized zirconia (YSZ) alloyed with at least a third oxide. The TBC (26) is formed to also contain elemental carbon, and may potentially contain carbides and/or a carbon-containing gas that forms from the thermal decomposition of carbon. The TBC (26) is characterized by lower density and thermal conductivity, high temperature stability and improved mechanical properties. To exhibit the desired effect, the third oxide is more particularly one that increases the lattice strain energy of the TBC microstructure as a result of having an ion size that is sufficiently different than a zirconium ion.

Figures